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NORTHERN ALASKA IN WINTER.

BY

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The low coastal plain of Northern Alaska gradually edges northward as it makes its way west from the International Boundary to Point Barrow, and then as gradually gives way southward as it continues towards Behring Straits, while the mountains make a short cut from the Mackenzie delta to intercept the coast line at Cape Lisburne—or, to change the figure, the mountains are an 800 mile bowstring to a thousand mile bow of seacoast.

The triangle of land north of these mountains is, in general, low and flat, though slightly rolling in places—typical arctic tundra, covered with grass and moss, rough with “nigger heads,”* and flecked with ponds and lakes of various sizes and shapes. These lakes, though they cover in the aggregate perhaps not more than a sixth of the entire country, are so situated usually as to make summer travel well-nigh impossible—one is fortunate if three miles of walking take him a single mile in the desired direction. If they have to travel in summer the Eskimos are confined to certain river and portage routes used by their ancestors “from always.”

The coastal plain is drained by a large number of rivers, some of them badly charted and others absent from our most recent maps. To a stranger who attempts to follow even the best maps they are worse than useless, for one is likely to strand even a small boat upon the delta flats of a large river where the chart indicates

* “Nigger heads” are small hillocks with cracks and crevices between them—mounds of the size of molehills but shaped more like mushrooms.

an unbroken coast line (as the writer has himself been unfortunate enough to do), while one looks for rivers where none exists, and hopes for shelter from storms behind capes that are imaginary. When a river has once been found, however, the fact that it comes to the coast from another direction than that which the chart indicates, is of little consequence to one who wants to ascend it for hunting or kindred purposes. It is in trying to cross over from one stream to another that danger would arise, but fortunately one cannot get far enough inland for that without ceasing to rely on a chart that is correct hardly oftener than the "law of chances" prescribes.

At Herchel Island the mountains are only some five or eight miles from the coast; at Flaxman Island, some 160 miles west of Herchel, they are, perhaps, thirty miles away; fifty miles west of Flaxman they are no longer in sight from the ocean. Anywhere east of the Colville river the rise of the land from sea level inland is perceptible to the eye; west of the Colville it is not, and at Smith Bay or Point Barrow one might travel inland for days under the impression that one walked on land not thirty feet above sea level. The rivers, however, show clearly enough that this is not the case, for fifty miles inland some of them have banks from fifty to a hundred feet high, and, nevertheless, flow seaward with a good steady current.

The rivers are usually devoid of tree growth near the sea, though one of the largest of them, the Mayoriak (in Smith Bay), has dwarf arctic willow growing to within four miles of the sea. The willow is crooked, grows not over five feet in height, though it would be much longer if the crooks and kinks were straightened out of it, and is seldom over an inch in diameter a foot above the ground. On the Colville delta islands, willow of a somewhat larger size grows north beyond the limit of tidewater. But salt water, with a westerly storm, comes far up the Colville—sometimes even up into the Itkillik, a branch that enters about two days' sled journey from the sea (perhaps 40 miles)—this with a rise of tide on coast of not over four feet.

Almost all the rivers have, somewhere in their course, willow large enough and abundant enough for fuel and building materials for considerable communities of Eskimos, or communities that were considerable till civilization and the diseases and well-meant and pious cruelty of the white civilizers depopulated them. By willow "big enough for house-building" the inland Eskimo means sticks an inch and a half to three inches in diameter at the lower end and seven to twelve feet in length. These serve him as a basket-like

frame to support a house of moss and turf, a comfortable and healthful dwelling in all weather. Those of the rivers that have a swift current (e. g., the Kugruak, Shaviövik, Shagavanaktok, Kupáruk) have drift willow scattered along their course to the sea in sufficient abundance so that the winter traveller who knows where to look under the snow for fuel can dig up enough dry sticks for the camp stove.

Fuel is abundant all along the coast from Herschel Island to within thirty miles east of Point Barrow. On the sandspits and bars that form the last thirty miles, fuel was formerly abundant, and since the people of the two large villages of Point Barrow and Cape Smythe (total population from 500 to 600 at different seasons) commenced living in wastefully cold and murderously damp white men's houses the entire enormous mass of accumulated driftwood has been consumed in a vain attempt to keep warm through the arctic night, dwellings built according to the ideas of missionaries and school teachers from the Mississippi Valley and the Middle Atlantic States. It may show forgetfulness of scientific dignity to suggest that the patrons of missions and the powers of the Department of Education in New York and Washington should ask their representatives to send them not only photographs of the "tidy modern" frame cockleshell of houses that are taking the place of the old Eskimo "hovels" at Barrow, Alaska, but also as companion pictures a few views of the graveyard behind the village where lie the victims of pneumonia, tuberculosis and other diseases that are bred in damp and cold. The village of Barrow (Cape Smythe) has about the same population now as it had twenty years ago, but not more than one man in twenty is a native of the place. Good wages at the whaling station and the bounty of the government school and the local mission keep a steady stream of immigrants moving across the little hill where the village stands to the little hollow behind where the graveyard lies. It seems to me that were I a lawmaker, powerless to keep out the influence of the "civilizer" from northern Alaska, I could get some satisfaction out of urging a law that should compel every "benevolent" organization that spends money up here to devote a certain share of its funds to the erection of marble slabs commemorating their victims. When the Eskimo have become a memory their monuments might serve to remind generations of greater understanding that there are few things more cruel than kindness, when that kindness is ignorant.

Formerly, driftwood was abundant along the entire north coast

of Alaska, but now very little comes ashore anywhere west and south from Point Barrow. This, if proof were needed, would show pretty conclusively that this section of the coast depends for its driftwood on the Yukon River; for the same years that have deprived that river of much of the trees along its immediate banks have deprived the northwest coast of wood for fuel, while the coast east of Barrow shows no marked diminution in its supply of driftwood. This would be the case if the eastern section of the coast got its wood from the Mackenzie, for the changes along that river are confined to its upper branches (the Peace and the Athabasca), and the Arctic driftwood of the Mackenzie comes largely from the Liard—for at least 99% of the driftwood of the Mackenzie's other two branches is stranded in Slave Lake.

The huge cottonwood trees scattered along the coast east of Barrow are of a character which the writer has not seen upon the Yukon (though such trees may of course exist there), but which he has seen on the Liard and Mackenzie. They, therefore, furnish a proof of westward currents (at least at certain seasons) along the north coast as far west as Barrow, while their absence beyond that point (and the driftwood dearth that coincides with the settlement of the Yukon valley) shows pretty well that this current does not follow the coast as it bends southward beyond the northwest corner of the continent. Taken together with the phenomenon, well known to whalers, that when ice moves past Cape Smythe it is generally in a northerly direction to and past Barrow, this makes pretty clear the fact that under average conditions there is an inverted "Y" (λ) formed by one current going northeast and another going northwest that meet at Barrow and join in a northward sweep approximately directed (on the start, at least) towards the pole.

A few years ago the disappearance of driftwood from the coast west of Barrow would have worked no considerable hardship, for until recently the oil of the seal, walrus, and whale was the fuel used. The native house has walls so thick and impervious to cold that four or five oil lamps kept it day and night at a uniform temperature of 65° to 85° F., and that with a ventilating chimney 2½ to 4 inches in diameter constantly open. When the house temperature is over +75° and the outside air is somewhere near below -40° the difference in the density of the outside and inside air is such that there is a current of the velocity of a force-blast through the ventilator continually. The more recent "civilized" dwelling, which the Eskimos are taking up, is so flimsy that even were it air-tight (as

it often is, very nearly) the oil lamps, though they be doubled in number, fail to keep it warm. A stove must be used and a roaring fire kept up. Then, at night, when people go to sleep, the fire dies out, everything in the house freezes, hoar frost forms on the ceiling and ice in the corners, in spite of the fact that the window-frames are puttied and even the keyhole in the door is plugged up. The "civilized" house has done away with ventilation and swept the beaches clean of wood. The wealthy Eskimo now imports coal from Seattle and elsewhere, the poor Eskimo goes 30 or 40 miles with his dogsled for fuel, and neither is so comfortably or healthfully lodged as he was ten years ago.

One might think that a little reasoning with them would show the folly of all this; but do the arguments of physicians lessen materially the sale of corsets in our department stores? While the whaler lives among them in his substantial whaling-station, and the missionary and school teacher dwell there, comfortably supported by wealthy maiden ladies and a benevolent government, so long will the Eskimos keep living in cheap imitations of white men's houses and dying before their time of pulmonary diseases.

Along certain sections of the coast the fuel problem is made less serious by the presence of surface coal of fair quality. One of these coal mines is located on Wainwright Inlet* (both sub-bituminous and lignite), and the people for some 20 or 30 miles each way from this point can get sufficient fuel with comparative ease. Coal outcrops at various other places, and on some sections of the beach it is piled up in quantities by ice and water action. Apparently the ice that is shoved in by southwest gales plows up the coal from the sea bottom. Coal can be got with little labour, therefore, in many places, but the only mines that are regularly worked (besides that at Wainwright) are near Cape Lisburn.

The climate of northern Alaska is, of course, typically arctic, but there is a marked difference (more especially in summer) between that of the coast section and places even no more than thirty or forty miles inland. Summer on the coast has few cloudless days, rain and mist are frequent and the temperature seldom rises to $+6^{\circ}$ F.; in the interior rain and mist are rare and the sun shines almost continually, while days uncomfortably warm (to a white man) are by no means rare. In winter there is also a somewhat less amount of precipitation than on the coast and the proportion of clear days is greater, but the thermometer, on the other hand,

* The Wainwright coal mine was set on fire three or four years ago and is still burning. It is probable that this fire will soon consume all the coal that is readily accessible from the surface.

falls somewhat lower, even on the lowland, while in the mountains there is occasionally a difference of some 15° from the sea-shore temperature.* The most marked difference between the coast and interior in winter is in the matter of blizzards, which the Eskimos consider to be twice as frequent on the coast as they are inland. The Eskimos also consider the coast colder than the interior, and point to the fact that in the inland districts dogs never freeze to death unless they are starving, while on the coast even fat dogs sometimes freeze to death.

A few years ago the Eskimos of northern Alaska might have been broadly classified as Inlanders and Coast People, but now most of the inlanders have moved to the coast—starved from the inland by the disappearance of the caribou and attracted to the coast by trading opportunities, missionary bounty and abundance of food in the sea. The present distribution of the people is about as follows. The facts are given as ascertained in October, November, and December, 1908, and January, 1909:

From the International Boundary to Barter Island—none.

Inland on the rivers that enter the sea near Barter Island, eleven or twelve families (40 or 42 people).

On the Kugruak River (called "Kugura" on some maps, "Kugaru" on others), inland, one family (6 people).

At Flaxman Island, three families (10 people).

On the Shavióvik River, three families (about 12 people).

On the Shagavanaktok, three families (about 14 people).

On sandbars near the mouth of the Shagavanatok, two families (8 or 9 people).

On the Colville River are several groups:

(a) Near Itkillikpak (the entrance of the Itkillik into the Colville), eight houses (45 people).

(b) Up the Itkillip River, six or seven families (about 25 people).

(c) Up the Kupik branch of the Colville, nine or ten families (about 40 people). In the bottom of Smith Bay, two families (8 people).

On the Ikpikpuk River (so far as I know), three families (about 10 people).

At Point Barrow, about 100. This number, as that at Cape Smythe, varies with the season, according as people go out to hunt or come in to whale.

At Cape Smythe sometimes over 400 people.

At Sinagaru, 6; at the Kiktolik Reindeer Herd, 10; at Kiliviktaviagaru, 2; at Nadlek (Pearl Bay), 7; at Pingashugaru (Point Franklin), 20; at Tidzravik (Point Belcher), 6; at the Agavak deer herd, 14; at Oroónek (Wainwright Village, two miles north of Wainwright Inlet), 26; at Midliktaavik, 5; at Kaiyeksegavik (Icy Cape), about 95.

* The lowest sea level temperature known to the writer is -54° F. This is the minimum record of the Canadian Government weather station at Herschel Island. An instrument corrected by the same standard has shown -55° on Lake Winnipeg, Manitoba. Reliable thermometers have shown -79° F. at Macpherson on the Peel, 200 miles from Herschel Island.

† The Colville, as a whole, has no Eskimo name, though each of its branches has its own name as well as each of its more important mouths.

This gives us a total population for the Arctic coastal plain and the north slopes of the mountains of less than 1,000 individuals from the Canadian boundary on the east to Icy Cape on the west. As indicated above, the greater part of these people, although they now live on the coast, are in reality inlanders or else young people born on the coast of inlander parentage. Nevertheless the total population of this coast is undoubtedly less than it was twenty years ago—even in spite of the inlanders flocking to the sea. Mr. Brower, the owner of the whaling station at Cape Smythe, who came to Point Hope in 1884, and has resided at Cape Smythe since 1886, gives it as his opinion that there are not half as many people resident on the coast now as there were in 1889 or at any known earlier time—a third is nearer the actual. And for every twenty real coast dwellers (by ancestry) of that time not more than one exists now. The rest, with their descendants, are dead, most of them of measles, pneumonia and consumption.

As mentioned above, the caribou have in the last few years become very scarce in northern Alaska. In 1897, when several whaling ships were caught in the ice at or near Point Barrow, it was a mistaken concern on the part of our Government that sent a herd of reindeer "to the rescue of the starving whalers." Caribou meat was so abundant that year that although the ships' dogs ate meat to surfeit, over 400 (some say 500) caribou carcasses rotted the following summer, even after the ships had provisioned themselves for the coming summer out of the surplus caribou killed.

This fall, less than fifty deer were killed by the 500 odd inhabitants of Point Barrow and Cape Smythe, while between the Colville River and Barter Island, about 125 miles of coast, 24 were killed, including those secured by our own party. Fish in the rivers and fish and seal in the sea have become the dependence of even the inlanders who formerly were caribou eaters. It has been the same story here with the caribou as it was formerly on the plains with the buffalo—wanton killing by whites and natives alike. The whalers at Herschel Island one winter bought 40,000 pounds of caribou meat, and they bought hams only. No account was taken of meat eaten by the dog teams in the process of hauling to the ships (seven to twelve dogs to the team, the round trip sometimes taking twenty days). These dogs were also fed chiefly on hams. At Barrow, deer were frequently killed without even the traditional cutting out of the tongue, familiar to us in tales of buffalo slaughter.

After something over twenty years of wastefulness, made possible

by the use of modern rifles (the Eskimo have the best "high-power" ones) and abetted by the whalemens' purchase of meat and skins, the Eskimo is now dependant on the sea and the rivers for his food, and at his wit's end to secure suitable winter clothing. Those who still live inland depend chiefly on river fish, though they get a few sheep in the mountains. In the whaling localities they now and then get a cowhead, which furnishes a large amount of food, if weather conditions allow the cutting in of the meat; the head bone of a large animal has a market value of several thousand dollars, and this goes to buy coal and other articles which they have in recent years learned to need. The people, naturally, crowd most to places where a living is most easily made; the foregoing description of their present geographic distribution, therefore, shows approximately what localities the Eskimo at present considers most favorable.

As to the degree of the Eskimos present "civilization": A few of them wear "white men's clothes" at seasons when the weather permits it; they live in "white men's houses" when they can; they burn kerosene instead of seal or whale oil when they can; they eat "flour" and neglect their sealing while the flour lasts; most of them are Christianized to the extent of neither working nor traveling on Sunday, and of saying prayers on all possible occasions—such as before and after washing the face and hands, and before taking medicine (patent medicine, usually; perhaps the precaution is not wholly unnecessary). That the washing, which takes place frequently, and on all possible pretexts, is less for hygienic or æsthetic purposes than for ceremonial ones is shown pretty conclusively by the fact that an entire household often washes in one basinful of water—I have seen twenty-six people wash in about a pint of water; each one rubbed on soap profusely. That their prayers, though ever so Christian in wording, are to the people merely a new and more efficient kind of charm, is shown by the fact that a prayer useful for securing good luck in fishing is usually considered worthless for ducks, deer or anything else, even when the word "ducks" or "deer" has been substituted for the word "fish." Many of the most efficient prayers used on the north coast in hunting, curing sickness, etc., originate in Kotzebue Sound, are brought over the mountains into the upper Colville and spread from there east and west. A man who announces that he has brought over from Kotzebue a new and improved prayer for deer, immediately becomes a power among the Colville people.

Eskimos are naturally keen traders, but they differ somewhat

from white men in that the trading seems to be more of a game than a serious pursuit. Among the Colville people there does not seem to be nearly so much store set by getting a large amount of goods from the Point Barrow traders (Eskimos) who visit them every summer as in making spectacular trades for single skins or in getting more for an article than does one's neighbor. What the prices are may be seen pretty clearly from one example. A man who had ten deer skins to sell (some good, some poor) got the following list of goods for them. The goods had been purchased at Point Barrow, either from resident white traders or from whaling ships, and were articles of good quality. The trade was made in July, 1908, at the trading village of Nirg-lik, Colville delta:

Six sacks (300 lbs.) flour, two new Winchester rifles, 3,000 rounds of factory loaded cartridges for these rifles, smokeless powder, two complete sets of reloading tools, 3000 primers, 150 lbs. bar lead, 20 lbs. rifle powder, one case tea (40 or 60 lbs.), 50 lbs. granulated sugar, six lbs. baking powder, ten steel traps (fox traps), two bolts of six-ounce tent drilling (each 125 yards), one bolt cotton print (cheap quality), and various odds and ends—tea kettles, needles, thread, nails, rope, an ax, hammer, handsaw—in fact, pretty nearly a boat-load of goods that must have cost at Point Barrow a good deal more than they would in Seattle, or even in Nome. And even after spending a whole summer on the trading journey and paying such prices as this for skins, the Barrow traders seemed pretty well pleased if they could only hear of some rival who had got fewer skins for his boatload than they had.

The influence of the whites upon the people has made many changes in many things, but in few things has the change been for the better. My own judgment is that as you follow the coast of Alaska, from Canada west, you pass continually to communities of successively higher "civilization" and lower type in most of the things that really signify—in bodily health, morals, truthfulness, honesty, self-reliance, self-respect. This is also the opinion of all those white men (with one exception), with whom I have talked, and whose experience and knowledge of the country entitle them to an opinion. It might be suggested, in reply to this statement, that perhaps the people to the eastward were always of a superior type; but this objection is cancelled by two things: First, that the old men in each community are considered more honorable and dependable (many of them to a degree rare in white men) than the young, or those of middle age; second, that there is no dissent

among men who have been here ten or more years, from the opinion that these old men are typical of their generation, and that the tendency of the younger is steadily downward. This opinion seems to me to be so well grounded that it would be but flippancy to suggest that this admiration of the departed generation is caused mostly by the glamour that usually surround the "good old days," "the Golden Age."

CHARACTERISTICS OF AMERICAN RAILWAY TRAFFIC: A STUDY IN TRANSPORTATION GEOGRAPHY.

BY

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The freight traffic of American railways far exceeds the tonnage handled by the railroads in any other country; indeed, the demand for transportation has been so great and the needs have been so fully met in the United States that the line mileage of our railways is greater by fifteen per cent. than the mileage of all Europe and comprises two-fifths of the railway net of the entire world. The density of traffic, naturally, varies with different sections of the country, and travel and tonnage are light in the sparsely settled sections; but the economic activity is such that the railways in the United States are burdened with nearly twice as many tons as are shipped in Great Britain, with double the tonnage dispatched in Germany, and with five or six times the weight of cargo shipped in France.

This comparison, favourable as it is, does not do full justice to American railways, because it does not take into account the relative distances freight moves in the four countries. The areas of primary production are so widely separated from the manufacturing centers in the United States, the farm and the factories are so far removed from the large markets in and through which goods reach consumers, that freight must be carried long distances. Two hundred and forty miles is the average length of haul for a ton of freight in the United States, while in the compact countries of Great Britain, France and Germany the average distance travelled by a ton of freight is less than one-third that number of miles.

The unit to be used in comparing the total freight services of one railway system with those of another, or of the railroads of different countries, is the freight ton-mile—one ton of freight moved one mile. The freight ton-mileage, the tons shipped multiplied by the number